



Mass General Brigham

Reducing Racial and Ethnic Disparities in Total Joint Arthroplasty Through Increased Utilization of Decision-Making Aids

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Problem Statement

Persistent Racial Disparities in Utilization Rates and Perioperative Metrics in Total Joint Arthroplasty in the U.S.


A Comprehensive Analysis of Trends from 2006 to 2015

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Total joint arthroplasty utilization rates are lower for Black and LatinX patients within the Boston community, and more specifically among patients being served by Mass General Brigham. We believe these disparities may be partly caused by differences in the utilization of decision-making aids among these populations.

White patients diagnosed with knee osteoarthritis were significantly more likely to receive total knee arthroplasty (TKA) than Black and Hispanic patients, even after adjusting for various demographic variables. Similar disparities were found among patients diagnosed with hip osteoarthritis who underwent total hip arthroplasty.

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 AAHKS
AMERICAN ASSOCIATION OF
HIP AND KNEE SURGEONS

Total Joint Arthroplasty Utilization After Orthopaedic Surgery Referral: Identifying Disparities Along the Care Pathway

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Contributing Factors

Primary Drivers/ Contributing Factors

Problem:

**Decreased TJA
utilization rates
among minority
patients**



**Systemic
barriers in
access to care**

- Insurance
- Socioeconomics (work etc.)
- Distance from hospital
- Family/Community Support

**Provider
facing factors**

- Language Barriers
- Inherent Bias
- Cultural Barriers
- Time to engage in shared decision making

**Patients facing
factors**

- Historical mistrust in healthcare providers
- Cultural stigma against surgery
- Access to culturally competent decision making aids



Baseline Data

Persistent Racial Disparities in Utilization Rates and Perioperative Metrics in Total Joint Arthroplasty in the U.S.

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Among Black orthopaedic patients, only 18.8% are completing their decision-making aids on our online patient portal, possibly leading to downstream disparities in total joint arthroplasty utilization among our minority patients.

Use of Decision-Making Aids by Race

		White	Black
All Decision Aids	Viewed	56.8% (291/512)	25.0% (8/32)
	Completed	27.5% (141/512)	18.8% (6/32)
Decision aids in Orthopaedics	Viewed	42.7% (208/487)	25.0% (8/32)
	Completed	28.5% (139/487)	18.8% (6/32)

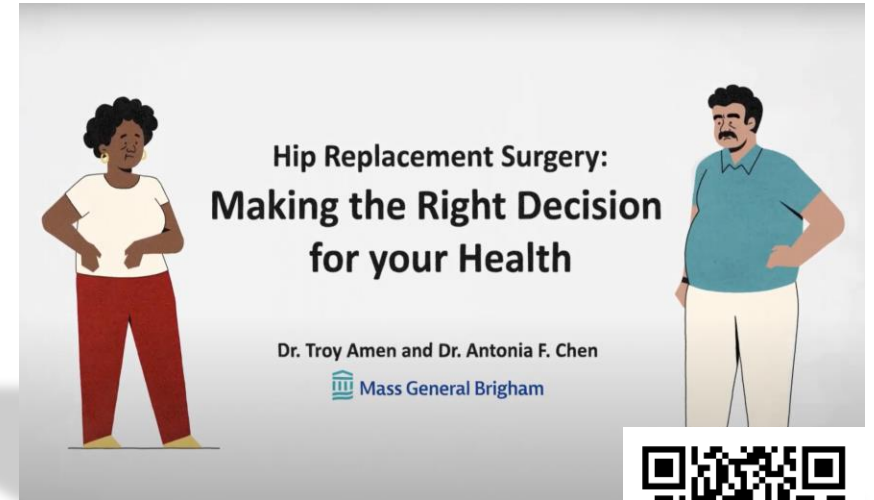


Year 1 Accomplishments - Overview

Aim: Improve utilization rates and efficacy of decision-making aids for total joint replacement by providing culturally competent materials for Black and Latinx patients with hip or knee osteoarthritis at MGB orthopaedic clinics.

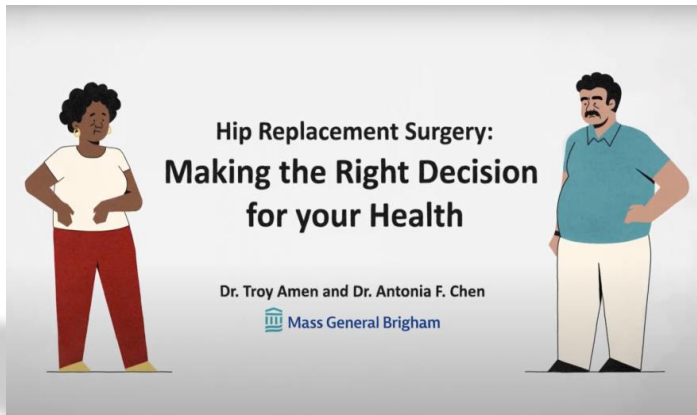
We implemented culturally competent decision-making aids for total joint arthroplasty (TJA) that are not only offered in Spanish but also incorporate individuals of color in their programming.

After watching our decision-making aid video, we identified increases in positive attitudes toward surgical treatment and a significant decrease in fear for surgical complications.

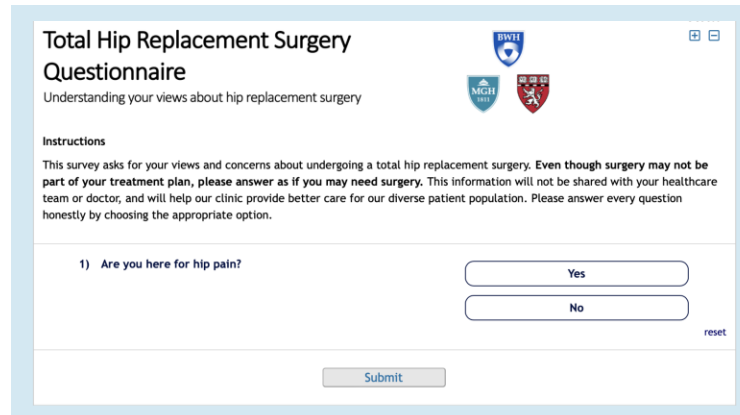


Year 1 Accomplishments – Process Metrics

Our goal is to see a 30% increase in utilization of decision-making aids and a 20% increase in positive attitude markers toward surgery after the presentation of the decision-making aid materials by December 2022.



Created decision making aid video for hip osteoarthritis.



Created survey with automated algorithm.



Presented video to new patients in waiting room. (n = 59)



Year 1 Accomplishments – Process Metrics

Our goal is to see a 30% increase in utilization of decision-making aids and a **20% increase in positive attitude markers** toward surgery after the presentation of the decision-making aid materials by December 2022.

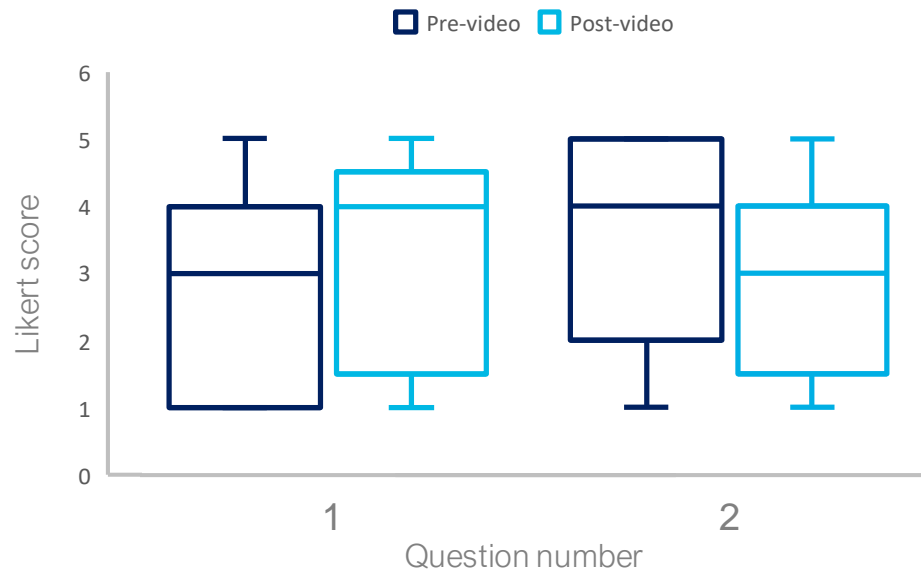


Figure 1. A. Effect of decision-making aids in patient attitudes, measured through a Likert scale.

Question	Outcome	p value
1 How much do you know about the risks and benefits of total hip replacement surgery?	Increase	0.036*
2 What is your current level of fear about undergoing a total hip replacement after watching the video?	Decrease	0.049*
3 What is your current level of trust in your doctors and healthcare team?	Increase	0.052
4 What is your current willingness to undergo a total hip replacement?	No change	1.000



Year 1 Accomplishments – Process Metrics

Our goal is to see a **30% increase in utilization of decision-making aids** and a 20% increase in positive attitude markers toward surgery after the presentation of the decision-making aid materials by December 2022.






	Priority	Reference	Difference in means	95% CI		p value adjusted
				lower	upper	
 Expectation of pain improvement after surgery	Pain	Time off	1.905	3.234	0.575	0.0004
 Physician trust	Pain	Trust	1.762	3.091	0.436	0.002
 Rehabilitation process	Pain	Caregiving	1.476	0.147	2.806	0.017
 Age of onset Ability to care for others	Pain	Finances	1.381	0.052	2.710	0.035
 Bad prior experiences with surgery Post surgical complications	Time off	Recovery	-1.381	-2.710	-0.052	0.035

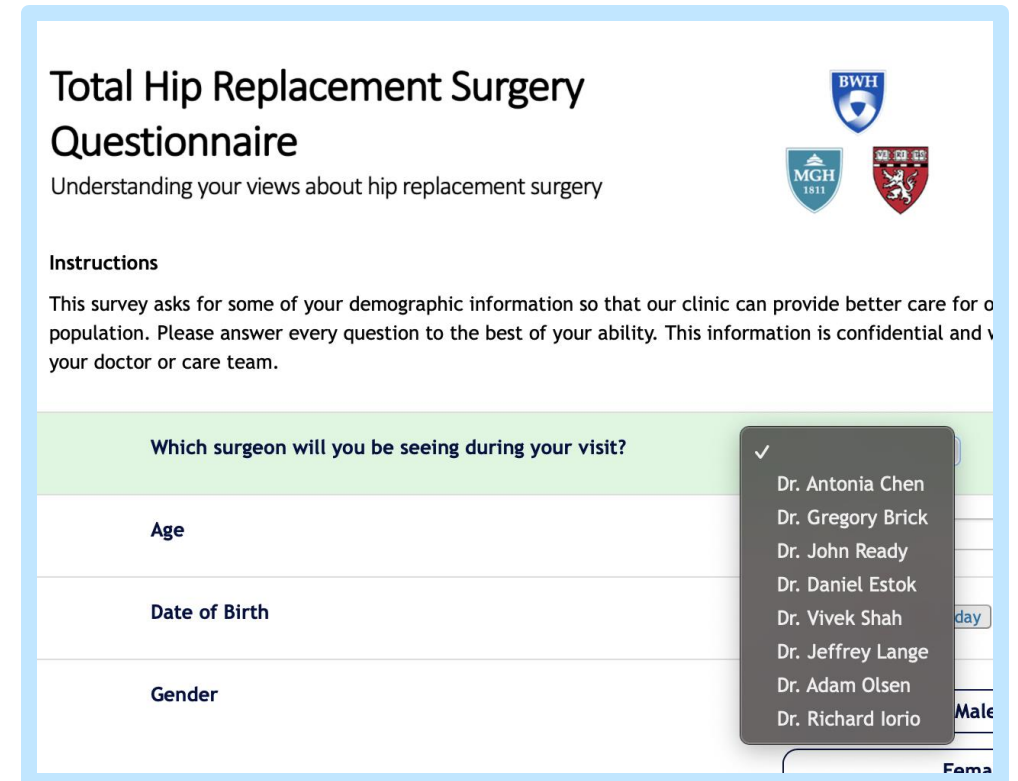
Figure 2. Factors influencing attitudes toward total hip replacement, extracted from patient self-reports. Comparison of patient priorities when making decisions about surgical treatment.

Year 1 Accomplishments – Clinical Outcome Metrics

We hypothesize that our goal of increasing decision-making aids utilization and improving attitudes toward surgery will result in a long-term increase in the number of Black and Latinx patients receiving hip and knee arthroplasty for osteoarthritis.

We are working toward a workflow that allows us to optimize our decision-making aid materials, measured as improvement in attitudes toward surgery, to incorporate them in routine for all patients who are presenting to clinic for hip or knee osteoarthritis.

To gather a greater sample size, we will be incorporating our video and surveys into eight surgeon offices across MGB. (as seen above)



Total Hip Replacement Surgery Questionnaire
Understanding your views about hip replacement surgery

Instructions
This survey asks for some of your demographic information so that our clinic can provide better care for our population. Please answer every question to the best of your ability. This information is confidential and will not be shared with your doctor or care team.

Which surgeon will you be seeing during your visit?

- ✓ Dr. Antonia Chen
- Dr. Gregory Brick
- Dr. John Ready
- Dr. Daniel Estok
- Dr. Vivek Shah
- Dr. Jeffrey Lange
- Dr. Adam Olsen
- Dr. Richard Iorio

Age

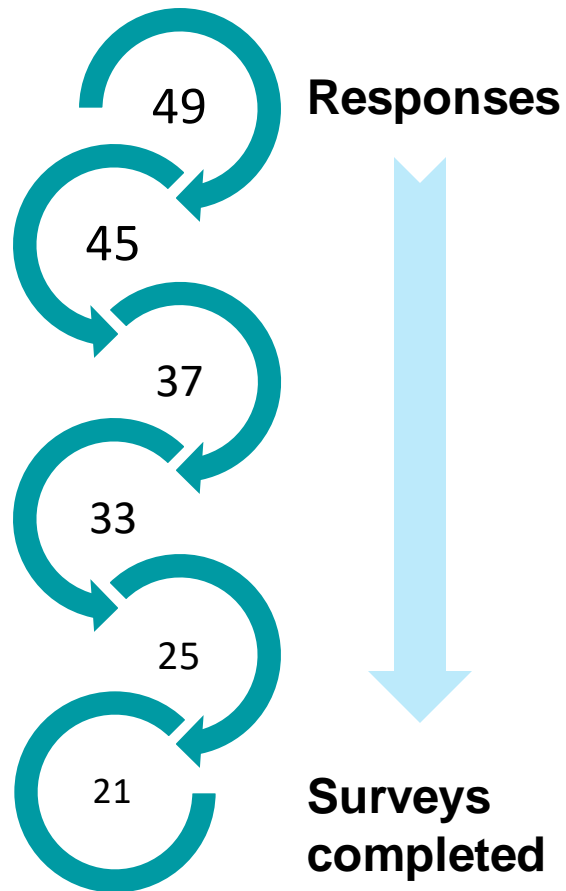
Date of Birth

Gender



Year 1 Challenges and Plan for year 2

We have found survey completion rates to be lower than expected. A significant portion of patients do not complete the post-video survey.



Efforts made to improve patient retention

- Completed changes
 - Changes in survey structure to improve patient experience
 - Creation of IRB to improve recruitment methods
 - Xealth incorporation to send survey at-home**
- Changes in progress
 - Incorporate into Patient Gateway
 - Send follow-ups via Epic/email (pending on IRB)
 - Employing an incentive structure – end of survey raffle
 - Incorporation of videos into PROMs workflow



**IRB recommended not to use Xealth for research purposes

Appendix



Team Members

Name	Credentials	Role/Discipline (i.e. hospitalist, nurse manager, analyst, etc.)
Project Leaders:		
Dr. Troy Amen	MD/MBA	Orthopaedic Surgery Resident
Dr. Antonia Chen	MD/MBA	Orthopaedic Surgery Attending
Adriana Echeverria Gonzalez	BS	Medical Student
Team Members:		
Dr. Gregory Brick	MD	Orthopaedic Surgery Attending
Dr. John Ready	MD	Orthopaedic Surgery Attending
Dr. Daniel Estok	MD	Orthopaedic Surgery Attending
Dr. Vivek Shah	MD	Orthopaedic Surgery Attending
Dr. Jeffrey Lange	MD	Orthopaedic Surgery Attending
Dr. Richard Iorio	MD	Orthopaedic Surgery Attending
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Project Sponsors:		





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